

## **SECTION 308**

### **TRAFFIC BOUND BASE COURSE OR SHOULDER**

#### **308.1-DESCRIPTION:**

This work shall consist of scarifying and reshaping the existing surface and reconditioning the whole by the addition of approved materials as required, in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses, and typical cross sections shown on the Plans or established by the Engineer.

#### **308.2-MATERIALS:**

Traffic bound base course or shoulder shall be composed of materials meeting the requirements of 704.6 for the class shown on the Plans except that 704.6.3 shall not apply.

**308.2.1-Quality Control Testing:** Quality control is the responsibility of the Contractor as specified in 106.1.

The Contractor shall maintain equipment and qualified personnel to perform all sampling and testing necessary to determine the magnitude of the various properties of the material governed by the Specifications and shall maintain these properties within the limits of the Specifications.

The Contractor shall design a quality control plan for detailing the methods by which the quality control program will be conducted. This plan, prepared in accordance with the guidelines set forth in the appropriate portions of MP 307.00.50 and MP 717.04.21, shall be submitted to the Engineer at the preconstruction conference. The work shall not begin until the plan is reviewed for conformance with the contract documents.

**308.2.2-Acceptance Testing:** Acceptance sampling and testing is the responsibility of the Division, except for furnishing the necessary materials. Quality control sampling and testing performed by the Contractor may be used by the Division for acceptance.

**308.2.3-Sampling and Testing:** Frequency of sampling and testing shall be in accordance with the Contractor's quality control plan. When Item 308001-\*, Class 1 aggregate is used as a shoulder material for resurfacing projects and these projects have a resurfacing depth of less than 3 inches (75 mm), and where the shoulder area is not boxed out, gradation samples may be taken from the stockpile prior to placement. The minimum frequencies shall be as indicated in applicable portions of MP 307.00.50. Aggregate shall be sampled in accordance with MP 700.00.06, Aggregate Sampling Procedures.

**308.2.4-Acceptance Procedure:** Material conforming to the specification requirements will be accepted at full contract price. Material failing to comply with the quality requirements of Table 704.6.2 shall not be incorporated into the work.

Acceptance for compaction and for gradation shall be in accordance with appropriate portions of 308.2.4.1. Shoulder aggregate adjacent to higher type pavement shall be compacted by pneumatic tire rollers.

**308.2.4.1-Acceptance Plan:** Acceptance for compaction of aggregate for roadway reconstruction shall be on a lot by lot basis. A lot shall consist of a single layer of not more than 2,000 linear ft. (600 meters) per width being placed. A lot shall be divided into five approximately equal sized sublots. One nuclear moisture and density measurement in accordance with applicable portions of 717 shall be made at a random location within each of the five sublots. The random locations shall be determined in accordance with MP 712.21.26. If the result of five density tests on a lot indicates that at least 80 percent of the material, in accordance with 106.3.1 (West Virginia AP-A), has been compacted to the specified target percentage of dry density, the lot will be accepted. If less than 80 percent has been compacted to the specified target percentage of dry density, no additional material shall be placed on that layer until it has been reworked to meet the specified requirements. Reworking and retesting shall be at the expense of the Contractor. When the Division performs the testing in the evaluation of the reworked lots, the testing will be at the expense of the Contractor at the unit cost specified in 109.2.2.

Acceptance for compaction of shoulder aggregate adjacent to higher type pavement shall be based on visual inspection to assure that the surface of the shoulder has been compacted to the level of the finished pavement surface. Shoulder aggregate adjacent to higher type pavement shall be compacted by pneumatic tire rollers.

Acceptance for compaction of Class 7 aggregate shall be based on visual inspection to assure that the aggregate particles are arranged in a stable manner.

Acceptance for gradation shall be on the basis of test results on consecutive random samples from a lot. A lot shall be considered the quantity of material, represented by an average test value, not to exceed five sublots. A subplot shall consist of a quantity of material represented by a single gradation test. The material shall be sampled and tested in accordance with 308.2.3. The gradation test results shall be plotted on a control chart in accordance with MP 300.00.51.

When the average, or when the most recent three consecutive individual test values fall outside the limits of Table 704.6.2, the lot of material represented will be considered nonconforming to the extent that the last of its sublots is nonconforming. When a lot of material is nonconforming, then the last subplot contained shall have its price adjusted in accordance with Table 308.6.1. In no event however, shall a subplot of material have its price adjusted more than once, and the first adjustment which is determined shall apply.

Acceptance for gradation of Class 7 aggregate shall be on the basis of the Contractor's written certification that the material meets the gradation requirements. Certification shall include a description of the crushing operation indicating the screens used.

**308.2.4.2-Degree of Nonconformance:** When a subplot of material is to have its price adjusted, the percentage point difference between the nonconforming

**308.2.4**

test value and the specification limit shall be determined for each sieve size determined to be nonconforming and this value shall be multiplied by its appropriate multiplication factor as set forth in Table 308.2.4.2 to determine the degree of nonconformance on the sieve.

The total measure of nonconformance of an individual subplot is the sum of all nonconformances on the various sieve sizes of that subplot.

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When the average, or when the most recent three consecutive individual test values fall outside the limits of Table 704.6.2, the lot of material represented will be considered nonconforming to the extent that the last of its sublots is nonconforming. When a lot of material is nonconforming, then the last subplot contained shall have its price adjusted in accordance with Table 308.6.1. In no event, however, shall a subplot of material have its price adjusted more than once, and the first adjustment which is determined shall apply.

TABLE 308.2.4.2	
NONCONFORMING SIEVE SIZE	MULTIPLICATION FACTOR
2 in. (50 mm)	1.0
1 ½ in. (37.5 mm)	1.0
¾ in. (19 mm)	1.0
No. 4 (4.75 mm)	1.0
No. 40 (425 µm)	1.5
No. 100 (150 µm)	2.0
No. 200 (75 µm)	2.5

When the total degree of nonconformance has been established and it is 12.0 or less, the material will be paid for at an adjusted contract price as specified in Table 308.6.1.

When the degree of nonconformance is greater than 12.0, the nonconforming subplot shall be resolved on an individual basis, requiring a special investigation by the Engineer to determine the appropriate course of action to be followed.

**CONSTRUCTION METHODS**

**308.3-RECONSTRUCTING ROADWAY OR SHOULDER USING  
ADDITIONAL AGGREGATE:**

**308.3.1-Surface Preparation and Spreading of Aggregate:** The existing

surface shall be scarified to a depth of 2 inches (50 mm) or as shown on the Plans. When existing shoulders are sloped steeper than the nominal  $\frac{3}{4}$  in. per ft (6%), the existing shoulder material shall be shaped to achieve that slope prior to addition of aggregate. Subgrade soil or ditch soil shall not be mixed with the loosened material. The loosened material shall then be broken and reshaped to form a uniform grade and cross section.

The addition material for roadway reconstruction shall then be spread evenly over the surface so formed in an amount sufficient to provide a compacted thickness equal to the thickness shown on the Plans or as directed by the Engineer. The loose surface of the reconstructed roadway shall then be carefully shaped and brought to the proper grade and cross section by use of a blade grader or other equipment as may be required.

Aggregate for shoulders shall be spread over the prepared surface to a width as specified in the Plans and to a depth sufficient to bring the uncompacted surface to a height of at least 1 in. (25 mm) above the finished pavement edge elevation. For compacted shoulder thicknesses exceeding 3 inches (75 mm), the differential from the pavement edge elevation must be increased to assure that the loose aggregate thickness is approximately equal to  $1 \frac{1}{3}$  times the compacted thickness. The loose aggregate is then to be shaped to proper grade and cross section maintaining the height differential.

**308.3.2-Compaction and Finish:** Compacting or rolling shall start along the edge and proceed towards the center, except that on superelevated curves compacting shall progress from the lower to the upper edge and shall continue until the stone is firmly set or keyed. When directed by the Engineer, the Contractor shall sprinkle the base with water in sufficient quantity to attain proper compacting. After final rolling, the surface shall be sprinkled with water at intervals as directed by the Engineer.

The roadway surface shall then be checked with a 10 ft. (3.048) straight edge and a crown board, and any unevenness more than  $\frac{3}{8}$  inch (10 mm) in 10 ft. (3.048) shall be corrected and rerolled. Shoulder surfaces adjacent to higher type pavement need not be checked with the straightedge.

Each layer shall be compacted. The moisture content shall be maintained at a level sufficient to facilitate compaction. Required density testing shall be in accordance with the provisions of the appropriate portions of 717. The surface of each layer shall be maintained during the compaction operation in such a manner that a uniform texture is produced and the aggregates firmly keyed. The surface of the top layer shall be carefully trued by blading if necessary.

**308.3.3-Roadway Surface Tolerance:** The completed roadway surface shall not vary more than  $\frac{3}{8}$  in. above (10 mm) or below plan grade, nor more than  $\frac{3}{8}$  in. from (10 mm) a straightedge 10 ft. (3 m) long applied parallel to the centerline of the pavement. Deviations shall be corrected by scarifying, adding additional approved aggregate if necessary, reshaping, and recompacting.

**308.3.4-Maintenance:** When a surface is to carry traffic before receiving a surfacing or pavement, the Contractor shall maintain the surface until final

#### **308.4**

acceptance and prevent raveling by the application of additional aggregate or water, or both, as may be required to keep the base tightly bound.

#### **308.4-RECONDITIONING ROADWAY WITHOUT ADDING AGGREGATE:**

When reconditioning of roadway without addition of aggregate is specified, the work shall be carried out as prescribed below. The existing roadway shall be scarified to the depth of 2 inches (50 mm) or as shown on the Plans and to the width of the complete roadway or as shown on the Plans. The loosened material shall then be reshaped to form a uniform grade and cross section. It shall then be rolled. Compacting and rolling shall start along the edge and proceed towards the center, except that on superelevated curves compacting shall progress from the lower to the upper edge. When directed by the Engineer, the Contractor shall moisten the scarified material to attain proper compacting. Blading and watering of the surface, if ordered, shall be continued during the rolling operations.

The material shall be compacted in accordance with the requirements of 308.3.2.

The surface shall be satisfactorily maintained until the base or surface course has been placed. If required, additional water shall be applied to prevent raveling.

#### **308.5-METHOD OF MEASUREMENT:**

The quantity of work done under reconstructing roadway or shoulder using additional aggregate shall be measured by the ton (Mg) of material complete in place and accepted.

The number of tons (Mg) of "Traffic Bound Base Course or Shoulder" shall be determined by the total of the weights shown on receipted railroad freight bills when materials are shipped by rail; by actual measured displacement of barges certified by the producer when water shipments are made, providing materials delivered by the methods are not stockpiled or stored; or determined by the Contractor from the total of weigh slips for each vehicle load weighed on an approved standard scale or from digital printout slips from an automatic batching plant, and certified by the Contractor to be correct.

Truck scales shall be provided by the producer or Contractor, except that truck scales are not required where the material is weighed at properly calibrated automatic batching plant facilities which are equipped with digital print-out equipment. The scales shall be of sufficient size and capacity to weigh the heaviest loaded trucks that are used for delivery of the material.

All truck scales shall be mounted on solid foundations which will insure their remaining plumb and level. All truck scales shall be inspected and sealed by the West Virginia Division of Labor, Bureau of Weights and Measures, or other appropriate agencies of the State or its political subdivisions. The Division may, at its option, accept inspection and sealing by out of state agencies when the material is weighed outside West Virginia.

A weigh person shall be provided by the producer. The weigh person shall certify that the weight of the material, as determined either by the truck scales

or from the digital print-out of the weights, is correct.

Each truck shall be weighed empty prior to each load, except at automatic batch plants approved to operate without truck scales. A digital recorder shall be required on all truck scales. The digital recorder shall produce a printed record of the gross, tare and net weights, and the time, date, truck identification and project number. Provision shall be made for constant zero compensation and further provision shall be made so that the scales may not be manually manipulated during the printing process. The system shall be interlocked so as to allow printing only when the scale has come to rest.

In case of a breakdown of the automatic equipment, the Engineer may permit manual operation for a reasonable time, normally not to exceed 48 hours, while the equipment is being repaired.

The quantity of work done under reconditioning roadway without adding aggregate will be measured by the square yard (meters) computing the area in square yards (meters), the length used will be the actual length measured along the centerline of the roadway surface and the width of the base shown on the Plans, plus the area of any widening, turnouts, or intersections, authorized and measured separately.

### **308.6-BASIS OF PAYMENT:**

The quantities, determined as provided above, will be paid for at the contract unit prices bid for the items listed below, which prices and payments shall be full compensation for furnishing all the materials including water for compaction, scarification and manipulation of existing surface, and doing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work.

**308.6.1-Price Adjustment:** Aggregates not conforming with the gradation requirements as described in 308.2.4.1 will be paid for at the adjusted contract price based on the degree of nonconformance as specified in Table 308.6.1.

TABLE 308.6.1

ADJUSTMENT OF CONTRACT PRICE FOR GRADATION NOT WITHIN SPECIFICATIONS	
DEGREE OF NONCONFORMANCE	PERCENT OF CONTRACT PRICE TO BE REDUCED
1.0 to 3.0	2
3.1 to 5.0	4
5.1 to 8.0	7
8.1 to 12.0	11
Greater than 12	*

\* The Division will make a special evaluation of the material and determine the appropriate action. Pending resolution of the matter, additional lifts of base or pavement shall not be placed over the nonconforming material.

308.7-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
308001-*	AGGREGATE BASE COURSE, **, CLASS “class”	TON (MEGAGRAM)
308010-*	RECONDITIONING ROADWAY	SQUARE YARD (METER)

\* Sequence number

\*\*Aggregate Type

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